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(54) [Title of the Invention] **Oral Composition**

(57) [Abstract]

[Problem] To provide an oral composition that effectively prevents the loss of minerals from the tooth structure, strengthens the acid resistance of the enamel and dentin, and prevents caries.

[Means to Solve the Problem] An oral composition containing (A) a pharmacologically acceptable zinc compound or compounds and (B) at least one compound selected from the group

of pharmacologically acceptable aldehyde compounds, phenol compounds and tea extract polyphenol compounds.

[Claims]

[Claim 1] An oral composition containing (A) a pharmacologically acceptable zinc compound or compounds and (B) at least one compound selected from the group of pharmacologically acceptable aldehyde compounds, phenol compounds and tea extract polyphenol compounds.

[Claim 2] The oral composition of Claim 1 wherein the aldehyde compound consists of at least one element selected from the group of para-tylol aldehyde, piperonal, and furfural.

[Claim 3] The oral composition of Claim 1 or Claim 2 wherein the phenol compound consists of at least one element selected from the group of eugenol, maltol, and thymol.

[Claim 4] The oral composition of any of Claims 1 through 3 wherein the composition also contains a pharmacologically acceptable fluorine compound.

[Detailed Description of the Invention]

[0001]

[Field of Industrial Application]

The present invention relates to an oral composition and more particularly to an oral composition that can be effectively used to prevent caries of the teeth, especially root caries.

[0002]

[Prior Art]

Oral compositions containing zinc compounds that are effective against halitosis, plaque and tartar are known in the art (Japanese Examined Patent Application No. 6-29175, PCT (WO) No. 8-505843, Japanese Unexamined Patent Application No. 5-97668, Japanese Examined Patent Application No. 3-40006).

[0003]

Oral compositions containing the above-mentioned zinc compounds are effective at preventing halitosis, plaque and tartar because they reduce plaque. However, there is now a demand for oral compositions that effectively prevent the loss of minerals from the tooth

structure, strengthen the acid resistance of the enamel and dentin, and prevent caries in addition to preventing the adherence of plaque and tartar to the tooth surface.

[0004]

[Problems that the Invention Is Intended to Solve]

An object of the invention is to improve on the existing technology mentioned above to provide an oral composition that effectively prevents the loss of minerals from the tooth structure, strengthens the acid resistance of the enamel and dentin, and prevents caries.

[0005]

[Means for Solving the Above-Mentioned Problems]

The purpose of the invention thus concerns an oral composition containing (A) a pharmacologically acceptable zinc compound or compounds and (B) at least one compound selected from the group of pharmacologically acceptable aldehyde compounds, phenol compounds and tea extract polyphenol compounds.

[0006]

[Preferred Embodiments of the Invention]

As stated previously, the oral composition of the present invention contains (A) a pharmacologically acceptable zinc compound or compounds and (B) at least one compound selected from the group of pharmacologically acceptable aldehyde compounds, phenol compounds and tea extract polyphenol compounds.

[0007]

The pharmacologically acceptable zinc compounds of the invention have antimicrobial properties and are capable of preventing the formation of plaque and tartar. [0008]

Examples of these pharmacologically acceptable zinc compounds include generally pharmacologically acceptable zinc compounds, such as zinc chloride, zinc sulfate, zinc nitrate, zinc oxide, zinc acetate, zinc lactate, zinc carbonate, zinc hydroxide, zinc phosphate, zinc fluoride, zinc salicylate, zinc thionate, zinc gluconate, zinc stearate, zinc citrate, zinc laurate, and zinc myristate. These zinc compounds may be used singly or in combination of two more.

[0009]

To ensure that it is effective at preventing the formation of plaque and tartar, the zinc compound of the oral composition is preferably included in the composition in a concentration of 0.01 percent or more, and more preferably, 0.02 percent or more, by weight of zinc ion. To

ensure chemical stability, the concentration is preferably limited to 5 percent or less, and more preferably, 2 percent or less, by weight of zinc ion.

[0010]

The use of the pharmacologically acceptable zinc compound or compounds and at least one compound selected from the group of pharmacologically acceptable aldehyde compounds, phenol compounds and tea extract polyphenol compounds in the oral composition of the invention is characterized by the following primary feature: The synergistic effect of combining at least one compound selected from the group of pharmacologically acceptable aldehyde compounds, phenol compounds and tea extract polyphenols with a pharmacologically acceptable zinc compound or compounds in the oral composition of the invention produces an improved composition that prevents loss of minerals from the tooth structure, which strengthens the acid resistance of the tooth enamel and dentin, thereby effectively preventing dental caries.

[0011]

Examples of the pharmacologically acceptable aldehyde compounds include para-tylol aldehyde compounds, piperonal compounds, and furfural compounds. These aldehyde compounds may be used singly or in combination of two or more.

[0012]

Examples of the pharmacologically acceptable phenol compounds include eugenol compounds, maltol compounds, and thymol compounds. These phenol compounds may be used singly or in combination of two or more.

[0013]

The aldehyde compounds and phenol compounds may be used as flavor ingredients in the invention.

[0014]

Examples of the pharmacologically acceptable tea extract polyphenol compounds include gallic acid derivatives such as catechins, epicatechins, galocatechins, epigalocatechins, and propyl gallate. These tea extract polyphenol compounds may be used singly or in combination of two or more.

[0015]

The pharmacologically acceptable aldehyde compounds, phenol compounds and tea extract polyphenol compounds may be naturally derived or synthesized. The pharmacologically

acceptable aldehyde compounds, phenol compounds and tea extract polyphenol compounds may also be used singly or in combination of two or more. [0016]

To ensure prevention of loss of minerals from the tooth structure and increase the acid resistance of the tooth enamel and dentin, the one or more compounds selected from the group of pharmacologically acceptable aldehyde compounds, phenol compounds and tea extract polyphenol compounds are preferably included in the oral composition in a concentration of 0.001 percent or more, and more preferably, 0.005 percent or more by weight. To prevent discoloration of the tooth structure, the concentration is preferably limited to 2 percent or less, and more preferably, 1.5 percent or less by weight.

[0017]

Pharmacologically acceptable fluorine compounds may also be included in the oral composition of the invention for improved prevention of plaque and tartar formation.

[0018]

Examples of the fluorine compounds include sodium fluoride, potassium fluoride, ammonium fluoride, calcium fluoride, copper fluoride, lithium fluoride, cesium fluoride, zirconium fluoride, tin fluoride, hydrofluoric acid, sodium monofluorophosphate, potassium monofluorophosphate, sodium titanium fluoride, potassium titanium fluoride, hexylamine hydrofluoride, glycine hydrofluoride, alanine hydrofluoride, fluorosilane, and diamine silver fluoride. Among these, sodium fluoride, potassium fluoride, ammonium fluoride, tin fluoride, sodium monofluorophosphate and potassium monofluorophosphate are preferably used in the oral composition of the invention.

[0019]

The fluoride compound is preferably included in the oral composition in a concentration of 0.01 to 5 percent, and, more preferably, 0.02 to 2 percent by weight of fluorine ions.

[0020]

Other ingredients, including other effective ingredients, abrasives, humectants, binders, foaming agents, preservatives, flavorings and pH regulators may be included in the oral composition as necessary as long as they do not interfere with the purpose of the invention.

[0021]

Examples of the other effective ingredients include enzymes such as amylase, protease, lysozyme and dextranase, anti-plaque and antimicrobial agents such as sanguinarine, allantoin,

aminobenzoic acid derivatives, hexetidine, chlorohexidine salts, triclosan, cetylpyridinium chloride, vitamins such as Vitamin B, Vitamin C and Vitamin E, and nitrate salts such as potassium nitrate, lithium nitrate and sodium nitrate.

[0022]

Examples of the abrasives include silicic anhydride, alumina, aluminosilicate, calcium hydrogen phosphate, calcium carbonate, calcium phosphate, and aluminum hydroxide.

[0023]

Examples of the humectants include glycerin, propylene glycol, sorbitol, polyethylene glycol, xylitol, and polypropylene glycol.

[0024]

Examples of the binders include sodium carboxy methylcellulose, methylcellulose, hydroxy ethylcellulose, xanthan gum, carrageenan, sodium polyacrylate, and gum arabic.

[0025]

Examples of the foaming agents include anionic surfactants, nonionic surfactants, cationic surfactants and ampholytic surfactants. Examples of the anionic surfactants include alkylsulfate surfactants such as sodium lauryl sulfate, amino acid surfactants, and sulfosuccinic acid surfactants. Examples of the nonionic surfactants include the polyoxyethylene-polyoxypropylene copolymers, fatty acid dialkanolamide surfactants and pluronic surfactants.

[0026]

Examples of the preservatives include paraben, methylparaben, propylparaben, benzoate, sodium benzoate, para-hydroxybenzoate ester, and titanium dioxide.

[0027]

Examples of the flavorings include saccharin salts such as sodium saccharin, dextrose, aspartame, xylitol, stevia extract, peppermint oil spearmint oil, mentha oil, orange oil, menthol, clove oil, anise oil, and wintergreen oil.

[0028]

Examples of the pH regulators include citric acid and its salts, phosphoric acid and its salts, malic acid and its salts, gluconic acid and its salts, maleic acid and its salts, asparagine acid and its salts, succinic acid and its salts, glucuronic acid and it salts, fumaric acid and its salts, glutamic acid and its salts, adipic acid and its salts, hydrochloric acid, and alkali metal hydroxide.

[0029]

The oral composition of the invention may be provided in a variety of forms suitable for the intended application, including dentifrice paste, dentifrice powder, liquid dentifrice, wet-powder dentifrice, gel, cream, paste, mouthwash, spray and foam.

[0030]

The oral composition of the invention may be used for prophylactic purposes, including prevention of tooth decay, because it effectively prevents the loss of minerals from the tooth structure, strengthens the acid resistance of the enamel and dentin and is extremely effective at preventing caries.

[0031]

[Examples]

The oral composition of the invention will now be described in more detail with reference to examples, but the invention is not limited by these examples.

[0032]

Examples 1 through 9 and Comparative Examples 1 through 4

Toothpaste formulations of the oral composition were prepared by combining the ingredients shown in Table 1 in the proportions shown in Table 1 to produce a uniform composition.

[0033]

A slurry was then prepared from each toothpaste formulation by combining purified water with the toothpaste at a ratio of 300 to 100 parts by weight. The slurry was centrifuged to obtain the supernatant, which was used as the sample solution. The following method was used to determine the rate of prevention of calcium loss associated with use of the sample solution.

[0034]

(Rate of prevention of calcium loss) 20 mg of bovine dentin powder prepared from bovine dentin was combined with 6 mL of the sample solution and maintained at 37° C under stirring for 1 hour. The bovine dentin powder was then separated from the mixture by centrifuge (5 minutes at 3000 rpm), and 20 mg of the powder was washed well in water and decalcified by immersion for 2 hours in 6 mL of a pH 4.5 0.1 M lactic acid demineralizing solution (37 °C). The amount of calcium released into the demineralizing solution from the bovine dentin powder was determined by inductively coupled plasma (ICP) spectrometry, and the following formula was used to calculate the amount of calcium released per 1 mg bovine dentin powder (W) (μg/mg):

$$W = (X/Y)$$

where X is the weight of the released calcium (μg) and Y is the weight of the dentin powder (mg).

[0035]

To provide a control, toothpaste formulations of the oral composition were prepared by combining the ingredients shown in Table 1 in the proportions shown in Table 1 to produce a uniform composition. A slurry was then prepared from each toothpaste formulation by combining purified water with the toothpaste at a ratio of 300 to 100 parts by weight. The slurry was centrifuged to obtain the supernatant, which was used as the comparative sample solution. The same method used to determine the amount of calcium released into the sample solutions per 1 mg bovine dentin powder (W) was used to determine the amount of calcium released into the comparative sample solutions per 1 mg bovine dentin powder (Wc).

[0036]

Subsequently, the rate of prevention of calcium loss (%) was determined in the sample and comparative sample solutions from the amount of calcium released per 1 mg bovine dentin powder using the following formula:

(Rate of prevention of calcium loss) = [(Wc - W)/Wc] × 100

The results are shown in Table 1.

[0037]

[Table 1]

Oral Composition Ingredients (wt. %)	Examples									Comparative Examples			
	1	2	3	4	5	6	7	8	9	1	2	3	4
Sodium fluoride	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Zinc chloride	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	–	–	0.1	0.1
Zinc oxide	–	–	–	–	–	–	–	–	–	–	–	–	0.1
Para-tylol aldehyde	0.2	–	–	–	–	–	–	–	–	–	0.2	–	–
Piperonal	–	0.2	–	–	–	–	–	–	–	–	–	–	–

Furfural	–	–	0.2	–	–	–	–	–		–	–	–	–
Eugenol	–	–	–	0.2	–	–	–	–	0.2	–	–	–	–
Maltol	–	–	–	–	0.2	–	–	–	–	–	–	–	–
Thymol	–	–	–	–	–	0.2	–	–	–	–	–	–	–
Catechin	–	–	–	–	–	–	0.2	–	–	–	–	–	–
Propyl benzoate	–	–	–	–	–	–	–	0.2	0.2	–	–	–	–
Silicic anhydride	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Sorbitol	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Sodium lauryl sulfate	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Sodium carboxy methylcellulose	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Citric acid	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Sodium saccharin	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Flavoring	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Purified water	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.
Total	100	100	100	100	100	100	100	100	100	100	100	100	100
Zinc ions in oral composition (wt. %)	.048	.048	.048	.048	.048	.048	.048	.048	.048	0.0	0.0	.048	.048
Rate of prevention of calcium loss (%)	21.6	18.6	18.9	21.1	21.9	17.7	18.5	23.1	22.3	0.0	0.8	2.4	3.8

[0038]

The results presented in Table 1 show that the rate of prevention of loss of calcium, which is an indicator for prevention of demineralization, is far higher in the oral compositions of Examples 1 through 9, which use a zinc compound and at least one compound selected from the group of aldehyde compounds, phenol compounds and tea extract polyphenol compounds, than in the oral compositions of Comparative Examples 1 through 4, which do not use these compounds.

[0039]

The results also show that the synergistic effect attained through combination of zinc chloride and an aldehyde compound in Example 1 results in a markedly higher rate of prevention of loss of calcium than obtained with Comparative Examples 2 and 3.

[0040]

Examples 10 through 13 and Comparative Examples 5 through 6

Toothpaste formulations of the oral composition were prepared by combining the ingredients shown in Table 2 in the proportions shown in Table 2 to produce a uniform composition.

[0041]

The toothpastes were tested in vivo by a method similar to the rat root caries assay presented by A. R. Firestone et al. in the Journal of Dental Research (p. 1583, Vol. 66, 1987) to determine the number of root surface caries in a rat caries model (no. of rats in model: 10).

[0042]

The testing was conducted on CARA rats. The CARA rats were fed a caries-promoting diet of ad libitum high-sucrose feed from Day 15 post-birth and inoculated daily from Days 18 through 20 post-birth with streptococcus sobrinus and actinomyces viscosus in two divided doses sufficient to cause caries. Each tooth was inoculated with an optically standardized dose (approximately 1×10^8 CFU/mL) of 0.2 mL. On Day 30 post-birth, 1 mm of the gingiva was cut away by electrosurgical cautery to expose the root surface. Teeth were re-inoculated on Day 36 post-birth according to the same method used previously, and 0.1 mg toothpaste was applied once daily to the teeth of the CARA rats. On Day 80 post-birth, the number of root surface caries in the CARA rats was determined and the mean number of root surface caries in the 10 CARA rats was calculated. The results are shown in Table 2.

[0043]

[Table 2]

Oral Composition Ingredients (wt. %)	Examples					
	10	11	12	13	5	6
Sodium fluoride	0.2	0.2	0.2	0.2	0.2	0.2
Zinc chloride	0.1	0.1	0.1	–	–	0.1
Zinc oxide	–	–	–	0.2	–	–
Sodium lauryl	0.5	0.5	0.5	0.5	0.5	0.5

sulfate						
Citric acid	0.2	0.2	0.2	0.2	0.2	0.2
Trisodium citric acid	0.2	0.2	0.2	0.2	0.2	0.2
Silicic anhydride	20.0	20.0	20.0	20.0	20.0	20.0
Sodium carboxy methylcellulose	1.5	1.5	1.5	1.5	1.5	1.5
Sodium saccharin	0.2	0.2	0.2	0.2	0.2	0.2
Sorbitol	60.0	60.0	60.0	60.0	60.0	60.0
Furfural	0.05	–	–	0.05	0.2	–
Para-tylol aldehyde	–	0.1	–	–	–	–
Propyl benzoate	–	–	0.2	–	–	–
Flavoring	0.95	0.9	0.8	0.95	0.8	1.0
Purified water	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.
Total	100	100	100	100	100	100
Zinc ions in oral composition (wt. %)	.048	.048	.048	.161	0.0	.048
Root surface caries (no./animal)	0.6	0.3	0.4	0.2	4.7	2.0

[0044]

The results presented in Table 2 show that the number of root surface caries is markedly decreased in the oral compositions obtained in Examples 10 through 13, which use zinc compounds and at least one compound selected from the group of aldehyde compounds, phenol compounds and tea extract polyphenol compounds, compared to the oral compositions obtained in Comparative Examples 5 through 6, which do not use these compounds.

[0045]

Comparison of the results for Example 10 and Comparative Examples 5 and 6 also show that the combination of zinc compounds and aldehyde compounds in Example 10 results in far fewer root surface caries than the use of one or the other of these compounds singly in Comparative Examples 5 and 6.

[0046]

Formulation Example 1 (preparation of dentifrice paste)

A dentifrice paste was prepared by combining the ingredients listed below in the proportions listed below by a standard method.

Ingredient	Content (wt. %)
Zinc chloride	0.1
Zinc oxide	1.0
Eugenol	0.1
Sodium fluoride	0.2
Silica anhydride	16.0
Sodium carboxymethylcellulose	1.3
Sodium lauryl sulfate	1.0
Titanium dioxide	0.4
Paraoxybenzoate ester	0.1
Citric acid	0.1
Trisodium citric acid	0.3
Sodium saccharin	0.1
Flavoring	0.6
Sorbitol	60.0
Purified water	Balance

[0047]

After preparation of the dentifrice paste, the rate of prevention of loss of calcium, used as an indicator for prevention of demineralization, was determined according to the method employed for Example 1, the results of which revealed a very high rate of prevention of loss of calcium.

[0048]

Formulation Example 2 (preparation of dentifrice paste)

A dentifrice paste was prepared by combining the ingredients listed below in the proportions listed below by a standard method.

Ingredient	Content (wt. %)
Zinc chloride	0.1
Zinc salicylate	0.2
Piperonal	0.1
Sodium fluoride	0.2
Silicic anhydride	16.0
Carrageenan	1.3
Sodium lauryl sulfate	3.5
Titanium dioxide	0.4
Paraben	0.1
Xylitol	10.0
Flavoring	0.7
Glycerin	50.0
Purified water	Balance

[0049]

After preparation of the dentifrice paste, the rate of prevention of loss of calcium, used as an indicator for prevention of demineralization, was determined according to the method employed for Example 1, the results of which revealed a very high rate of prevention of loss of calcium.

[0050]

Formulation Example 3 (preparation of dentifrice paste)

A dentifrice paste was prepared by combining the ingredients listed below in the proportions listed below by a standard method.

Ingredient	Content (wt. %)
Zinc citrate	0.2
Zinc gluconate	0.2
Furfural	0.1
Sodium monofluorophosphate	0.2
Calcium carbonate	16.0
Sodium carboxymethylcellulose	1.3
Sodium lauryl sarcosine	2.0
Polyoxyethylene-hardened castor oil	1.0
Titanium dioxide	0.4
Paraoxybenzoate ester	0.1
Malic acid	0.2
Stevia extract	0.1
Flavoring	0.7
Sorbitol	55.0

Polyethylene glycol	5.0
Purified water	Balance

[0051]

After preparation of the dentifrice paste, the rate of prevention of loss of calcium, used as an indicator for prevention of demineralization, was determined according to the method employed for Example 1, the results of which revealed a very high rate of prevention of loss of calcium.

[0052]

Formulation Example 4 (preparation of dentifrice paste)

A dentifrice paste was prepared by combining the ingredients listed below in the proportions listed below by a standard method.

Ingredient	Content (wt. %)
Zinc chloride	0.2
Zinc stearate	0.3
Propyl gallate	0.2
Sodium fluoride	0.2
Triclosan	0.5
Silicic anhydride	16.0
Sodium polyacrylate	2.0
Sodium lauryl sulfate	1.0
Pluronic	1.0
Titanium dioxide	0.4
Paraoxybenzoate ester	0.1
Xylitol	10.0
Flavoring	0.7
Sorbitol	50.0
Purified water	Balance

[0053]

After preparation of the dentifrice paste, the rate of prevention of loss of calcium, used as an indicator for prevention of demineralization, was determined according to the method employed for Example 1, the results of which revealed a very high rate of prevention of loss of calcium.

[0054]

Formulation Example 5 (preparation of mouthwash)

A mouthwash was prepared by combining the ingredients listed below in the proportions listed below by a standard method.

Ingredient	Content (wt. %)
Zinc chloride	0.1
Eugenol	0.1
Sodium fluoride	0.05
Sodium lauryl sulfate	0.5
Polyoxyethylene-hardened castor oil	1.0
Sodium dihydrogen phosphate	0.1
Disodium hydrogen phosphate	0.1
Sodium saccharin	0.1
Flavoring	0.7
Ethanol	10.0
Sorbitol	10.0
Purified water	Balance

[0055]

After preparation of the mouthwash, the rate of prevention of loss of calcium, used as an indicator for prevention of demineralization, was determined according to the method employed for Example 1, the results of which revealed a very high rate of prevention of loss of calcium.

[0056]

Formulation Example 6 (preparation of mouthwash)

A mouthwash was prepared by combining the ingredients listed below in the proportions listed below by a standard method.

Ingredient	Content (wt. %)
Zinc chloride	0.1
Zinc oxide	0.2
Catechin	0.2
Sodium fluoride	0.05
Sodium lauryl sulfate	0.2
POE (2) synthetic sodium alkyl (12 – 14) sulfosuccinate	0.2
Malic acid	0.3
Flavoring	0.7
Glycerin	10.0
Xylitol	5.0
Purified water	Balance

[0057]

After preparation of the mouthwash, the rate of prevention of loss of calcium, used as an indicator for prevention of demineralization, was determined according to the method employed for Example 1, the results of which revealed a very high rate of prevention of loss of calcium.

[0058]

Formulation Example 7 (preparation of gel)

A gel was prepared by combining the ingredients listed below in the proportions listed below by a standard method.

Ingredient	Content (wt. %)
Zinc chloride	0.1
Epicatechin	0.1
Sodium fluoride	2.0
Hydrofluoric acid	0.7
Phosphoric acid	3.0
Sodium saccharin	0.5
Flavoring	0.8
Glycerin	30.0
Purified water	Balance

[0059]

After preparation of the gel, the rate of prevention of loss of calcium, used as an indicator for prevention of demineralization, was determined according to the method employed for Example 1, the results of which revealed a very high rate of prevention of loss of calcium.

[0060]

Formulation Example 8 (preparation of non-aerosole foam)

A non-aerosol foam was prepared by combining the ingredients listed below in the proportions listed below by a standard method.

Ingredient	Content (wt. %)
Zinc chloride	0.1
Zinc myristate	0.1
Para-tylol aldehyde	0.1
Sodium fluoride	2.0
Hydrofluoric acid	0.7
Phosphoric acid	3.0
Tripotassium phosphate trihydrate	1.5
Sodium lauryl sulfate	1.0
Pluronic	7.0
Coconut oil fatty acid diethanol amide	0.5
Sodium saccharin	0.8
Flavoring	0.7
Glycerin	5.0
Ethanol	5.0
Purified water	Balance

[0061]

After preparation of the non-aerosol foam, the rate of prevention of loss of calcium, used as an indicator for prevention of demineralization, was determined according to the method employed for Example 1, the results of which revealed a very high rate of prevention of loss of calcium.

[0062]

[Effect of the Invention]

The oral composition of the invention effectively prevents demineralization of the tooth surface, strengthens the acid resistance of the enamel and dentin, and prevents caries.